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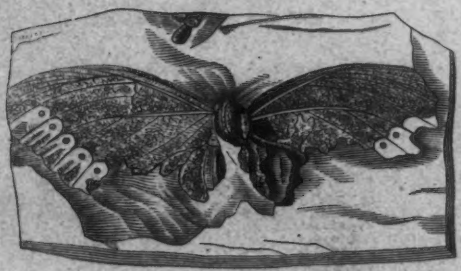
Entomological News



ARGYNNIS PLUTO.
(Fossil butterfly)

MARCH, 1898.

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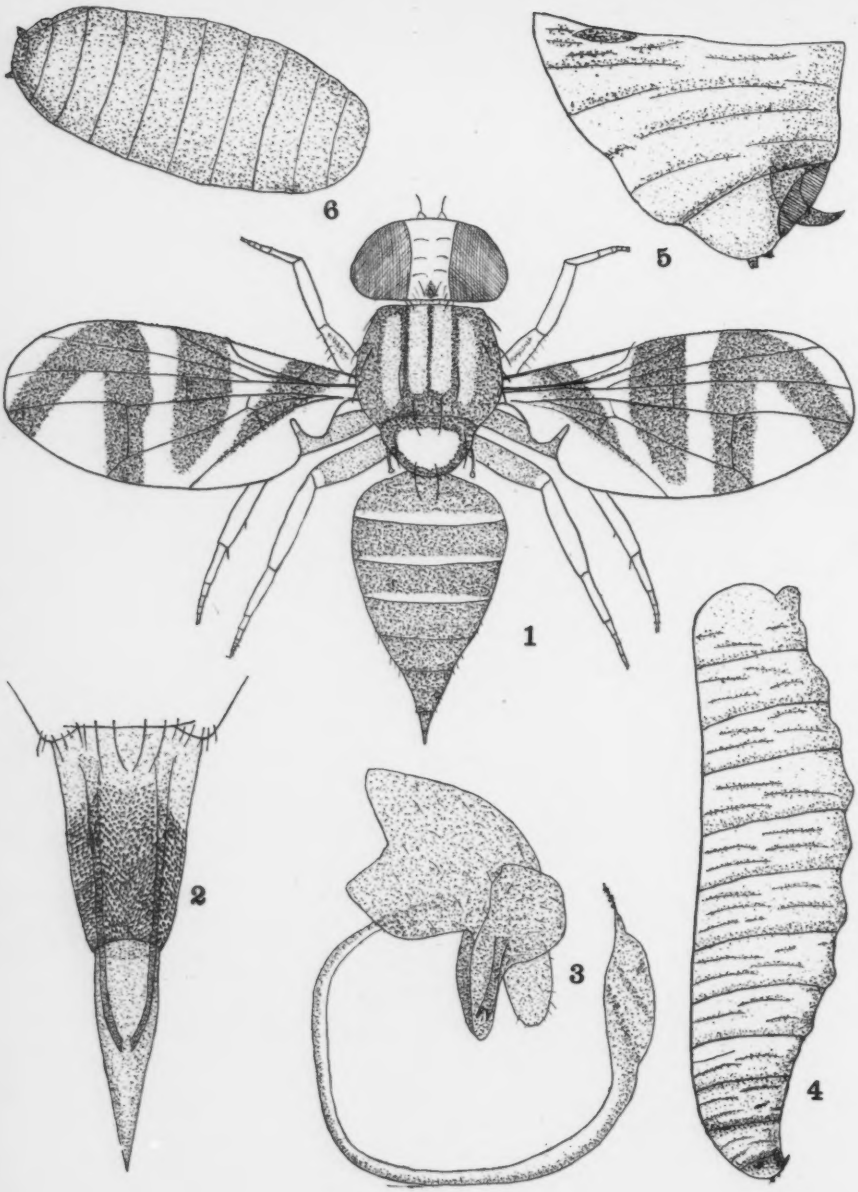

A NEW TRYPETED.

(See page 69.)

EXPLANATION OF FIGURES.

Fig. 1.—Rhagoletis ribicola n. sp. ♀.
" 2.—Ovipositor and sheath.
" 3.—External genitalia of male.
Fig. 4.—Larva.
" 5.—First two segments of larvæ.
" 6.—Pupa.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. IX. MARCH, 1898. No. 3.

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RARÆ AVES OF THE INSECT FAUNA OF ARIZONA.

By Dr. R. E. KUNZE, Phoenix, Ariz.

Having for nearly two full seasons collected in Arizona, I wish to place on record a few of the good finds allotted to a passionate collector under sometimes very trying circumstances. The season never closes in S. Arizona; Coleoptera are found every month of the year. Whenever a longer breathing spell is at hand I will more fully describe the insect fauna and flora of this sun-kissed land.

I will briefly refer to memorized notes, the vast amount of all material collected precluding detailed account, except for a little biological work. Of Sesiidæ found one only in San Francisco Mountains, saw another of same species on flowers of *Withia* spec. which I failed to net. This Autumn found what appears to be a *Sesiid*, beaten off a shrub, *Hymenoclea monogyra*, the arrow weed of bottoms; in all, two examples were secured early in November. Of Sphingidæ, rare in S. Arizona, took at light in June, 1897, one ♂ *Dilophonota obscura*, and a ♂ *Diloph. ello*, middle of September. In July, 1896, took an *Hemaris cynoglossum* near Prescott, and several more at headwaters of Hassayampa River, near Senator Mills. One of these taken on Mount Union, head of this river, at 8600 feet elevation, near its

peak on flowers of *Monarda fistulosa* or horsemint. A single example of a three-winged *Smerinthus*, form *astarte*, found on Mount Humphrey, Flagstaff, July, 1897, and one *ophthalmicus*, perfect ♂, taken in Phoenix at light. *Sphinx chersis*, found in but two or three examples, S. Arizona. *Triptogon*, var. *occidentalis*, not uncommon.

Of Syntomidæ took *Anatolmis fulgens*, that scarlet gem of the mountains of Coconino County. Pericopidæ were represented by *Gnophæla hopfferi* and *Melanchroia inconstans*, both visiting flowers of *Withia* spec. a plant resembling *Elecampane*, and *Rudbeckia laciniata*, or Thimbleweed of San Francisco Mountains; all taken in bright sunshine. Of Arctiinæ took a few *Emydia ampla* at light in Yavapai County, and *Arctia* var. *arizonensis*, in Southern and Central Arizona. A fine arctian so much like *Eupseudosoma floridum*, taken at light in September in Phoenix. That rare *Halisidota ambigua*, taken in two examples; one in Yavapai County, in 1896, and the other in Coconino County, 1897, at light. *Arachnis picta* not uncommon in Central Arizona.

Liparidæ furnished me one of *Artaxa ingenita*, taken at light in Yavapai County, and now in collection of Mr. J. T. Mason, Denver, Col., and Mr. D. Bruce informed the writer that only one other had been taken in this country, belonging, as it does, to the Mexican fauna. I labor under the impression that I have put away another poorer specimen taken this Autumn at same locality. It is saffron-colored, size of *Orgyia antiqua* ♂.

Notodontidæ furnished two surprises—now in the hands of Prof. A. S. Packard for determining; one a *Datana* nov. spec. bred from a gregarious larva found on *Quercus emoryi* early part of August, 1896, in Yavapai County, the imago of which bears a resemblance to *D. ministra* of eastern United States, so Mr. Chas. Palm, to whom I sent all pupæ, informs me. The larva is jet black, covered by long, fine white hairs all over its body. The other is *Cerura nivea*, in last synopsis accredited as a variety of *Cinerea* of the East. I bred from ova of two different females and obtained a number of fine cocoons. The larvæ of both moths are exactly alike in coloration, size and ornamentation—are unlike those of *Cinerea* excepting in first and second stages. In its third and fourth stages this larva more resembles that of *C. multiscripta*. One of the females was almost immaculate,

excepting a fine black spot between veins of external margin of primaries, and the other bred from showed a few black markings on primaries near costa and basal parts. My notes taken of this, a true species, will soon be made public.

Of rarer Saturniidæ, obtained one *T. polyphemus* var. *oculea*, in July, 1896, and two others in August, 1897; all three imperfect. This variety is heavily overlaid with black scales, especially on primaries. The best example is in Mr. Mason's collection, and others in possession of Prof. Packard for comparative study. Of *Hyperchiria pamina*, obtained only four or five larvæ and cocoons in two years from Yavapai County.

Bombycidæ furnished me with several undetermined examples. *Gloveria arizonensis* I took in two examples in central Arizona; also a *Heteropacha* sp. which Mr. D. Bruce did not recognize.

Of Cossidæ, Mr. Bruce thinks I collected a new species, resembling a *Hypopta* and quite small, now in the hands of Prof. Packard for determining. It was taken in Maricopa County, '97.

Of Geometridæ, took four new species, 1896, in central Arizona, one of which, a *Spodoptera*, Dr. G. D. Hulst, named after its collector.

Of Noctuidæ, dare not speak; a large catch, season of 1897, has not been examined for lack of time Heterocera are better represented here than Rhopalocera, and on account of intense heat numbers of the latter are much localized; some even betake themselves, much as we do, to the shady side of the bush to escape a broiling sun.

(To be continued.)

———o———

CONTRIBUTIONS TO THE ODONATA OF MAINE.—III.

By F. L. HARVEY, Orono, Maine.

(Continued from ENT. NEWS, vol. iii, Nos. 4 and 5, 1892.)

Tribe I.—AGRIONINA.

Subfamily 1.—CALOPTERYGINÆ.

1. **Calopteryx maculata** Beauvois.

Farmington (Miss Furbish), S. Lagrange (Harvey).

2. **C. æquabilis** Say.

Orono, June 17, 1897 (Bartle and Florence Harvey), Auburn (E. D. Merrill), Foxcroft and S. Lagrange (Harvey).

This species was rather common this season. The *teneral* males are without the black tips to the wings.

54. **Hetærina americana** Fabr.

Chemo Stream, Bradley, Sept. 23, 1897 (E. D. Merrill). A single headless male found on the shore below a fall. We have never seen this species before in Maine. This is the most eastern locality known. It has been taken in western Maine

Subfamily 2.—AGRIONINÆ.

55. **Amphiagrion saucium** Burm.

Orono, June 10 and 18, 1892; Bradley, July 8, 1897 (Harvey); Frog pond, Orono, June, 1897 (Bartle Harvey).

8. **Enallagma hageni** Walsh.

Rangeley (Miss Furbish), Foxcroft (Harvey).

56. **E. calverti** Morse.

Orono, June 28, 1897 (Florence Harvey).

57. **Nehalennia posita** Hag.

Orono, July 12, 1897, over Penobscot River (Bartle Harvey).

9. **N. irene** Hag.

Westbrook (Ricker).

58. **Erythromma conditum** Hag.

Chemo Stream, Bradley, July 8, 1897; not common (Harvey).

13. **Lestes unguiculata** Hag.

A single ♀, N. W. Carry, head of Moosehead Lake, Aug. 26, 1897 (Harvey).

59. **L. uncata** Kirby.

Over road June 28, 1897, Orono (Bartle Harvey). Many females but few males. Some of the males lacked the yellow humeral stripe, others had the mid-dorsal carina yellow.

60. **L. congener** Hag.

A single ♀ Aug. 26, 1897, N. W. Carry, head of Moosehead Lake (Harvey).

Subfamily 3.—GOMPHINÆ.

61. **Ophiogomphus anomalus** n. sp. (Pl. v, fig. 1).

Length 42 mm.; abdomen 30 mm.; hind wing 24 mm. Black with bright yellow colors.

Frons yellow, separated from clypeus by a black line. Clypeus and ante-clypeus yellow; black bands running across the post-clypeus to the

suture of the ante-clypeus dividing it into three yellow areas. The black bands continue along the suture of the ante-clypeus to the outer edge of the labrum, between the labrum and ante-clypeus, down the middle of the labrum and along its lower edge dividing the yellow of labrum into two areas. Base of mandibles and occiput yellow. Antennæ and vertex black. The top of vertex straight and bearing on the crest black cilia. The face and vertex clothed with dark hairs. The basal joint of the antennæ with a narrow yellow line on the upper edge. Back of head and eyes dark.

Prothorax black; an anterior narrow line and two small median spots yellow. Thorax bright yellow; mid-dorsal stripe wider below, divergent above and joining the ante-humeral behind; ante-humeral and humeral stripes (separated below for half their length by a yellow line) and a double, interrupted stripe on the middle of the side, black. The humeral stripe joins the one on the side anteriorly.

Wing hyaline, pterostigma brown; membranules very narrow and pale yellow; triangles not crossed and slightly angled at the origin of the cross-vein between the two upper discoidal areolets. Arculus straight, the sectors separated, and the spaces above and below equal.

Legs black, the lower surface of the femora lighter, hind femora with numerous short spines.

Abdomen black, with a mid-dorsal and a lateral yellow stripe involving the base of all the segments. The stripe on the dorsum of segments 3–9 narrow, on 8 club shaped, on 9 square, on 10 round, with a point behind. The stripe extends the whole length of the dorsum of 1 and 2. The lateral stripe conspicuous on 7–10. The spots on 9 and 10 involve the whole length of the side. That on 9 notched above and resembling a letter **C**. The yellow on the side of 10 extends along the sutures at the base of the superior appendages. Segments 7–10 dilated, greatest width at base of 8 (2.5 mm.)

Superior appendages black, a little longer than 10, broad at the base, the outer edges straight and parallel, the inner divergent, ending in a blunt point. Under surface bearing numerous tubercles arranged in irregular longitudinal rows, seven or eight of which appear as minute teeth in profile view.

Inferior appendage light colored, stout, grooved on the outer sides near the base, the outer half abruptly curved upward meeting the superior appendages one-third from the end.

Described from a single male taken June 15, 1892, at Orono, along the border of woods, by F. L. Harvey. Female unknown.

Mr. Calvert makes the following comment on this species: "This male agrees with the characters given by Baron de Selys (Comptes Rendus, Ann. Soc. Ent. Belg. 1879, p. 64) for *Ophiogomphus* excepting the branches of the inferior appendage, which are strongly upcurved in their apical half, as in *Erpetogomphus*,

instead of at the apex only, as in typical *Ophiogomphus*. This species is, therefore, to this extent, intermediate between the two genera named with stronger affinities to *Ophiogomphus*."

62. **Gomphus scudderi** Selys (Pl. v, figs. 6–8).

♂ (hitherto unknown).—Length 58 mm., abdomen 43 mm., hind wing 35 mm. Black, fuscous and greenish yellow.

Frons greenish yellow with a black band on the lower edge above the articulation with the clypeus. Yellow of the post-clypeus divided into three areas by a black patch each side of the middle; ante-clypeus black. Labrum yellow, with anterior border black. Base of mandibles and labium greenish yellow; vertex and antennæ black. The basal joints of the antennæ with a yellow ring on the distal end. Occiput greenish yellow, the crest slightly convex and armed with black hairs. Rear of eyes pale.

Prothorax unicolored. Thorax fuscous, mid-dorsal carina black and prominently crested in the middle. The narrow anterior transverse stripe (interrupted at the mid-dorsal carina) and the narrow ante-humeral stripes (much divergent below), greenish yellow. Sides of thorax with three yellow stripes, the anterior best defined, the dark stripes alternating at the first and second lateral sutures. Three greenish yellow spots on dorsum between the wings. Underside of anterior femora pale. Hind femora with numerous short bristles.

Wings hyaline, pterostigma 4 mm., brown; ante-cubitals 15–16, post-cubitals 10–11. All triangles and basal spaces free from cross-veins. Arculus angled, the spaces below and above the union of the sectors *equal*. Outer side of triangle straight.

Abdomen black. Segments 7, 8 and 9 much dilated. Eighth segment nearly 7 mm. wide. Segments 3–10 with basal yellow rings, those on 8, 9 and 10 reduced to sutural lines. An acute, triangular, mid-dorsal, basal spot on the eighth segment and a smaller spot with an obtuse angle on the basal dorsum of the ninth. Dorsum of 1 and 2 with narrow yellow stripes. Auricles and a round spot behind them on the sides of 2 yellow. A lateral yellow line, faint on segments 4–6, but prominent as large basal spots on 7, 8 and 9.

Superior appendages black, stout, longer than 10, very divergent at tip, where the acute points are 3 mm. apart and considerably wider than the breadth of 10. On the inferior surface, in their apical third, are about six low, broad crenules seen by microscope in profile view.

Inferior appendage brown, nearly as large as the uppers, flattened at the base and excavated above, more widely divergent in the middle than at either end, wider in the middle than the superior appendages and equally divergent at the tip. The ends turned upward and approaching the superior appendages. Both appendages armed with bristles.

Nearly related to *Gomphus fraternus*, but much larger, abdo-

men more dilated, and also with a dorsal basal spot on ninth segment, and the superior appendages have several crenulæ on the inferior apical third.

Described from a single male taken Aug. 25, 1897 (by F. L. Harvey), over Russell Stream, a tributary on the East Side of the West Branch of the Penobscot River, two miles above Northeast Carry near the head of Moosehead Lake.

25. **Gomphus nævius** Hagen (Pl. v, figs. 2–5, 9, 10).

♂ (previously unknown).—Length 34–37 mm.; abdomen 25–27 mm.; hind wing 19.5–21.5 mm. Greenish yellow and black.

Frons, clypeus and labrum greenish, with the sutures separating them more or less black, the black extending in a narrow line nearly half way across the centre of the labrum. Vertex and occiput black, the latter with a small yellow spot behind, and its straight hind margin with long black hairs. Eyes greenish. Apex of first joint of the antennæ on the inside yellow. Rear of head black.

Prothorax black with two minute yellow dots on the middle of the dorsum and a narrow yellow line on the anterior border.

Thoracic dorsum black, excepting a transverse anterior, and two isolated ante-humeral stripes which are greenish yellow; the transverse anterior stripe interrupted by the mid-dorsal carina; the first ante-humeral stripes are oblong in form and divergent anteriorly. The second ante-humeral stripe, when entire, narrowed in the middle; when broken, the upper half is sometimes reduced to a small superior spot; to have this stripe entire is the exception. Sides greenish yellow. Black bands on the humeral and first and second lateral sutures. The metastigma black. The underside of the thorax and the coxæ yellowish green.

Legs black. Interior median surface of the femora of the fore legs greenish.

Wings hyaline. Costa greenish yellow; pterostigma black, 3 mm. long on the hind wing; ante-cubitals 11, post-cubitals 8.

Abdomen black, marked with yellow as follows: segment 1 with a narrow mid-dorsal stripe, a transverse stripe on posterior end of dorsum and lower half of side. Segment 2 with a mid-dorsal stripe, arrow-shaped, with the point backwards, the auricles and a patch behind them next the genitalia. Segment 3 with lateral proximal spots which may be continuous over the dorsum forming basal rings, or interrupted, leaving basal dorsal spots. The dorsal markings may be obsolete, especially on 4–6. Segment 10 unspotted. Suture between 8 and 9 yellow on dorsum. The spot on side of 8 conspicuous, larger than on the other segments, extending to the middle above and the whole length on the lower border. The ventral edge of all the segments pale colored. Segments 3–7 slender, widening to the apex of 8, which is 2 mm. broad, then narrowing to 10, which is 1.5 mm. broad.

Superior appendages yellowish white, with a narrow black band on the base as far as the inferior tooth. About the same width for one-third of the length, then abruptly narrowed from the outside to slender points, which are turned outward and upward at the ends; from the base curved outwards until, at one-third the length, the two are wider than the 10th segment, then curving inwards, and at the apex outwards and upwards. An inferior obtuse tooth at one-third of the length from the base.

Inferior appendage dark brown, lighter above, the tips and base black, three-fourths as long as the superior appendages; bifid about one-half the length; the outer edges parallel and widest at the base, narrowing from the inside to blunt, upturned tips, which approach the superior appendages and are equally divergent; sinus open. In profile view, curved downwards in the basal third, then gradually upwards to the apical third, which curves rapidly upwards. Both appendages clothed with hairs, those on the upper pale, those on the lower dark.

♀.—The females are somewhat variable. Of three specimens before me two have the second ante-humeral stripe entire, but narrowed in the middle; the other has the stripe interrupted in the middle, the upper part pale and hardly half so long as the lower. One of those with the full humeral stripe lacks the yellow dorsal spot on the 8th segment. The back of the vertex yellow, and also a triangular space on its front. The suture between the frons and nasus is black only at the outer angles. The sides of abdominal segments 1 and 2 and the basal half of 3 yellow, also the sides of 7–9 yellow with black in the upper anterior part.

Described from forty specimens taken at Chemo Stream below the bridge at the old mill, Bradley, Me., July 8, 1897, by F. L. and Bartle Harvey.

The specimens were flying up stream, and were nearly all taken from a small rock six inches out of water, upon which they would almost invariably alight by preference, although there were several other rocks apparently equally favorably situated. It is hard to take them on the wing as they fly very close to the water. The whole day was occupied in watching the stream by the writer and his son. Only three females were seen. One pair was taken *in copula*. My son spent the whole of the following day at the same place on the stream and did not see a single specimen. Two or three specimens were seen the last of July over swift water on Birch Stream in Greenfield, about eight miles from the other locality. The male of this species previously unknown is now represented by many more specimens than the female.

FIVE NEW SPECIES OF PHLEPSIUS.

By C. F. BAKER, Ala. Polytechnic Inst. Auburn, Ala.

Phlepsius dentatus n. sp. ♂.—Length 7 mm. Form of *humidus*. Head broader than thorax; vertex rather strongly angulate before, nearly as long as half the width between eyes, or three-fifths the length of the pronotum; disc distinctly broadly depressed, anterior edge acute; front broad above, rapidly narrowing to clypeus, an eighth longer than wide, about two and a half times the length of the clypeus, sides obtusely angled just below antennal pits, then broadly shallowly incurved above; pronotum sparsely punctured on posterior half, slightly incurved behind; width little less than two and one-fifth times length. Elytra slightly narrowed toward tips. Color pale fulvous. Head and thorax thickly irrorate with deep fulvous, leaving a few very small lighter areas. Elytra whitish, veins light brown, with several more or less extensive very pale fulvous clouds in three indistinct transverse bands; irrorations sparse and weak; fore and middle femora imperfectly biannulate with fulvous. Abdomen above and below somewhat darker. Plate subtriangular, produced at tip in a narrow projection as long as rest of plate; valves longer than entire width across base, sides rounded below, contracted at upper two-thirds, tip flaring and curved, the inner extremities each with a short, inwardly bent, dark brown tooth.

Described from one male in the Uhler collection. It was taken on the Delta Railroad, eight miles northeast of Baltimore. This species differs from any other American *Phlepsius* in the form of the male genitalia.

Phlepsius pulchripennis n. sp. ♀.—Length 5.5 mm. Small and slender, form more nearly of *irroratus*. Head slightly broader than thorax; vertex obtusely angulate, length half of the width between the eyes, or half the length of the pronotum; disc gently convex, anterior edge obtusely rounded onto the front; front rather long and narrow, a half longer than wide, two and three-fourths times the length of the clypeus, sides nearly straight; pronotum obscurely wrinkled on posterior three-fourths, nearly straight behind, width about two and one-sixth times the length. Elytra distinctly narrowed towards the tip. Color sordid cinereous. Head more or less irregularly smutted with blackish; pronotum with a few scattering irregular brown markings. Elytra milky white and veins brown, except a large portion of costal cell, which is transparent and without supernumerary veins or markings, the supernumerary veins moderately numerous elsewhere; three black spots on apical half of costa, one in middle basal cell, and one on clavus next the clavus next the claval suture; reticulations very unevenly distributed and confined mostly to median portion of elytra, being largely wanting along commissural margin and costa; fore and median femora biannulate with brown. Last ventral segment as long as broad; hind margin shallowly trisinuate.

Described from two females, one collected at Opelousas, La., by Mr. G. R. Pilate, and one at Auburn, Ala., by myself. This is the only known northern representative of a group of Phlepsiids mostly confined to tropical and subtropical America. There are a number of undescribed species of this group in Mexico and Central and South America, all showing a strong resemblance.

Phlepsius pusillus n. sp. ♀.—Length 5 mm. Small, but robust. Head slightly broader than thorax; vertex obtusely angulate, width between eyes about two and one-third times its length, the length about one-half that of pronotum; disc slightly depressed, nearly flat, anterior edge somewhat obtuse, not at all thin and acute; front short, and very broad throughout, two-sevenths longer than wide, two and one fourth times longer than clypeus, broadly slightly bulging at antennal cavities; pronotum finely, sparsely punctured and obtusely wrinkled on posterior half, hind margin nearly straight; width little more than two and one-fourth times the length. Elytra short and broad, but little exceeding abdomen, scarcely narrowed towards tips. Color pale fulvous. Face washed with heavier fulvous, leaving numerous lighter dots; vertex and pronotum irregularly irrorate. Elytra white, with very few distinct supernumerary veins; rather evenly, finely irrorate with brown, some darker dots along commissural margin and apex of costa; dorsum and vicinity of notch on last ventral segment blackish. Legs irregularly marked with dark fulvous. Last ventral segment large, twice length of preceding, nearly truncate behind, with a large median notch.

♂.—Like the female, except venter darker. Plate triangular, as long as preceding segment; valves once and a half the length of plate, sides gently curved to an obtuse point.

Described from two specimens in the Uhler collection, one collected September 25 at Caton's Bush, two miles southeast of Baltimore, Md.; the other, September 20 at Odenton, sixteen miles southeast of Baltimore. This is one of the smallest of the more typical Phlepsiids. *Ovatus* has the head narrower than the pronotum. *Uhleri* belongs to the group including *strobi* and *Eutettix seminuda*.

Phlepsius occidentalis n. sp. ♀.—Length 6 mm. Short and broad. Head slightly broader than thorax; vertex obtusely angulate, length at middle but little less than half width between eyes, or about two-thirds of the length of the pronotum; disc depressed, anterior edge somewhat compressed, but not thin and acute. Front broad above, narrowed rapidly to clypeus, about one-fourteenth longer than wide, two and one-fifth times as long as clypeus, sides slightly bent outward at antennal cavities; pronotum obscurely wrinkled and finely sparsely punctate posteriorly, hind margin nearly straight; width two and a half times the length. Elytra

rather short, scarcely narrowed towards tip. Color cinereous. Head and thorax irrorate with fulvous, the latter sparingly, the face with numerous light dots. Basal angles of scutel fulvous. Elytra whitish, sparsely and subobsoletely irrorate with brown, most distinctly so at extreme apex; fore and middle femora indistinctly biannulate with fulvous. Last ventral segment twice the length of the preceding, very slightly broadly produced at the middle, with a median notch, the lateral angles prominent, obtuse; portions of hind margin blackened.

Described from a single female in the Uhler collection. It was collected in Washington Territory. It is nearer to *humidus* and *nebulosus* than to any other species, but differs widely from these as described above.

Phlepsius mimus n. sp. ♂.—Length 6.5 mm. Form and size nearly of *texanus*, somewhat more slender. Head slightly broader than thorax; vertex short, very bluntly angulate, disc convex, though slightly transversely depressed behind, broadly rounded onto the front; length at middle slightly less than a third of width between eyes; front broad, length once and a tenth its width, twice and four-fifths the length of clypeus; clypeus somewhat broader than usual at base; pronotum finely, sparsely punctured on posterior three-fourths, hind margin very shallowly, angularly emarginate; width little less than twice and one-third the length. Elytra somewhat narrowed towards the apex: excepting a few in costal cell, the supernumerary veins are wanting. Color pale cinereous. Face finely confluently dotted with fulvous; vertex and pronotum coarsely irrorate with fulvous. Elytra milky white, with the irrorations, except sparingly along costa and apex, broken up into fine dots, something as in *punctiscriptus*. Several small darker spots along claval commissure and costa towards apex. Wings infuscate apically; fore and middle femora each with one distinct brown annulus near the apex, hind tibiæ with dark tips. Abdomen somewhat darker above and below; some brown blotches on mesopleuræ. Plate large, triangular, the valves extending its length beyond it; valves with numerous stout white bristles, the sides incurved before the narrow, strongly divergent tips.

Described from a single specimen from the Uhler collection, taken October 11 at Odenton, sixteen miles southeast of Baltimore. This species is nearest *texanus*, from which it differs in coloration and structure of genitalia. *Texanus* is more robust and darker. Its resemblance to *punctiscriptus* is but superficial, the structure of the head widely separating it from that species.

DOMINION OF CANADA—DEPARTMENT OF AGRICULTURE.—I am delighted to notice that the magazine still continues to be of such high quality. I do not know what your arrangements are for paying for plates, but figures of new species similar to the exquisite work on Plate III of *Pyrameis carye* in the present volume would, I know, be acceptable to many entomologists besides me.—JAMES FLETCHER.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., MARCH, 1898.

THE DISTRIBUTION OF ENTOMOLOGISTS.

The subscription list of the NEWS suggests to us some interesting points for study in relation to entomologists in this country and Canada. It appears that entomology has grown from certain centres of interest, irrespective of population, although population is doubtless also a factor to a certain extent. As an illustration, the States that produced Say, Harris Walsh and Fitch show for Pennsylvania 83 subscribers, Massachusetts 63, Illinois 47 and New York 88. The South and far West, except California, show a lack of interest due to want of centres or starting points and not lack of population. Wherever one person begins the study others sooner or later follow in the good work. Indiana, a populous State, shows but 6 subscribers. Delaware, Maryland and the District of Columbia give but 26, and most of these are in the city of Washington. The New England States, excepting Massachusetts, show little interest in comparison; Maine having 9 subscribers, New Hampshire 6, Vermont 2, Rhode Island 6 and Connecticut 19. Some States in the West show a surprising lack of interest; Nebraska, for instance, furnishes 2 subscribers, Dakota 2, Idaho 2, Montana 4, Nevada 1. The States that do not believe in the NEWS, or who have no entomologists, are Wyoming and South Carolina. California shows the results of the work of some of its well-known entomologists of the earlier years as its subscribers amount to 41. Canada gives 27 and Europe but 31. Instead of having a subscription list of 550 it should be twice that many and we could then make the NEWS a journal of which to be proud.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. Joh B. Smith, Sc.D., New Brunswick, N. J.

A NEW TRYPETID OF ECONOMIC IMPORTANCE.

By R. W. DOANE.

(Washington Agricultural College and School of Science.)

Since the publication of Loew's Monograph, two new species belonging to the genus *Rhagoletis* have been described; one *R. zephyria* Snow, in Kan. Univ. Quar. ii, 164; the other *R. formosa* Coquillett, in Canadian Entomologist, xxvi, 71. These with the species described herewith make six species belonging to this genus, which may be separated by the following table based principally on the wing markings.

With three cross-bands and two spots; the first spot between apices of first and second veins, the second in apex of first posterior cell . . . . . **formosa** Coq.

With four cross-bands.

First and second cross-bands connected posteriorly.

Second and third cross-bands not connected anteriorly. **tabellaria** Fitch.

Second and third cross-bands connected anteriorly.

Length 3.5 to 4.5 mm. . . . . **pomonella** Walsh.

Length 2.5 to 3 mm. . . . . **zephyria*** Snow.

First and second cross-bands converging, but not connected posteriorly.

With a brownish spot at tip of vein three . . **cingulata** Loew.

With no such spot . . . . . **ribicola** n. sp.

Rhagoletis ribicola n. sp. ♂♀.—Black, head and its appendages yellowish, a dark blotch on the vertical triangle. Last joint of the antennæ very slightly concave on dorsal side, anterior corner rather sharp; moder-

* I have not seen this species, and can find nothing in the description of *zephyria* that is not true to a greater or less extent of *pomonella*. As the depth of coloration varies considerably in both species, little dependence can be placed on this character. I have one specimen of *pomonella* from Massachusetts in which the hyaline space between the second and third cross-bands reaches the fourth vein, and in which the fourth band fills out the tip to as great an extent as in Mr. Snow's figure of *zephyria*. The description of *zephyria* was drawn up from three males from Southern California. Two other specimens are mentioned from the same locality in which the cross-veins are more approximate, in fact just as they are in *pomonella*, so that the difference in size seems to be about the only thing that would separate the species, and as this is subject to considerable variation in both instances it would seem that *zephyria* is not a distinct species.

ately deep furrows for the reception of antennæ; proboscis and palpi short; bristles black, three facial pairs convergent, the ocellar pair strongly proclinate, the two fronto-orbital and the vertical pairs strictly reclinate.

Thorax shining black with four rather broad, longitudinal, whitish lines on dorsum, the outer pair longer and narrower than the inner pair; scutellum except the base and sides, halteres, and a line running from the humeri to the base of each wing, light yellow; the thoracic and four scutellar bristles black.

Abdomen shining black, posterior border of segments two, three and four with a rather broad band of white; sixth segment of male small, partially or wholly concealed beneath the fifth; seventh segment of female a little longer than sixth, flattened or slightly concave, ventrally; sheath of ovipositor and ovipositor reddish brown; the sheath cylindrical and covered with fine triangular scales; ovipositor dagger shaped; a few short black marginal bristles on last three segments.

Legs clay-yellow; posterior and middle coxæ and femora except tips, black; anterior femora with only a little black. Wings hyaline, marked with four brown cross-bands, the first is somewhat oblique and runs from the humeral vein to the sixth longitudinal vein, along which it gradually fades out beyond the posterior basal transverse vein; the second is much broader, nearly perpendicular, begins on the costa between the tips of the auxiliary and the first longitudinal vein and extends across the middle of the fifth longitudinal vein, fading out before reaching the posterior margin of the wing; the third is nearly parallel with the second, not quite as broad, runs over the posterior cross-vein, and reaches the posterior margin just behind the tip of the fifth longitudinal vein; the fourth band is oblique, completely united with the third on the costal border and reaches the posterior border at the tip of the fourth longitudinal vein; first longitudinal vein with very short black bristles; the anterior cross-vein is a little more oblique and very slightly curved; anal cell not drawn out to a point. Length ♂ 3.5-4. mm.; ♀ 4-4.5 mm.

Many males and females from eastern and western Washington and western Idaho. The marking on the wing closely resemble Figure 11, Plate X, Loew's Monographs, Part III, but the spot at the tip of vein three is wanting, the first cross-band reaches farther down on vein six, the second fades out gradually a little nearer the margin than is indicated in Loew's figures. The posterior basal transverse vein forms almost a right angle at its union with the fifth longitudinal vein, thus cutting the anal cell off squarely. In Loew's figure these veins form an obtuse angle at their junction and the anal cell is drawn out to a point. This species also differs from the description of *R. cingulata* in having the four light stripes on the thorax and in having more black on the femora.

It will be noted that in the description we have referred to the male as having six abdominal segments and the female as having seven. A careful examination of several species, together with Prof. Harvey's remarks on *Epochra canadensis* (Report Maine State College 1895, p. 123), has led us to adopt this view. Of course what Loew called the first segment is made up of the first and second, closely united; the third, fourth and fifth are always easily distinguishable and more or less similar in appearance throughout the different genera of this family; the fifth segment of the male is, however, in some species more elongated and conical; the sixth segment of the male is always small and partially or wholly concealed underneath the fifth; a careful examination, however, cannot fail to reveal it. In the female the sixth segment is similar to those preceding it, but the seventh is, in many species, more or less elongated, conical, or flattened, and often of a different color than the other segments. This is usually referred to as the ovipositor, or as the first segment of the ovipositor. Of course if we consider the ovipositor as being made up of modified abdominal segments and we certainly must in this group at least, it is not a matter of any great importance how many of these segments we call abdominal segments and how many of them shall be referred to as the ovipositor, but it seems as if the use to which the respective segments are put should decide this. As the seventh segment takes no part in making the puncture, and, as in some species (*R. ribricola*, *R. pomonella* and others), it differs very little in appearance, shape or structure from the segments which precede it, we see no reason why it should be any longer referred to as the ovipositor, or as a part of the ovipositor. Retracted within the seventh segment is the sheath of the ovipositor, and within this the ovipositor proper. When not in use these are telescoped within the seventh segment so that ordinarily little or none of the ovipositor is visible.

The female of *Rhagoletis ribicola* when depositing her eggs behaves in much the same manner as the female of *Epochra canadensis* as described by Prof. Harvey. It is interesting to note, however, that after the ovipositor is withdrawn from the berry she often turns round and sips up the small drop of juice that flows from the puncture.

This species is of considerable economic importance in this State (Washington) as each year the larvæ destroy much of the

fruit on the cultivated currant and gooseberry. The adults are most abundant late in June, when they may be found in considerable numbers around currant and gooseberry bushes. The eggs are deposited in the berries in which the larvæ feed until full grown, of course destroying the berries, and usually causing them to drop to the ground. There is but a single generation each year, the insect passing the Winter in the pupa state in the ground or underneath rubbish under the bushes. In a bulletin, soon to be issued by this Station, the life-history of this insect is given in detail under the popular name of the *Dark* Currant Fly to distinguish it from the other currant fly (*Epochra canadensis*) which also occurs quite abundantly throughout the State.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

PICTURES for the album of the American Entomologicel Society have been received from Charles F. Goodhue, Webster, N. H., and Charles C. Adams, Urbana, Ill.

YOUR journal is indispensable to working entomologists, either in applied or purely scientific fields, and I find the pages devoted to notes on Entomological Literature very convenient for reference.—MARY E. MURTFELDT.

THE volume of NEWS for 1897 was duly received. The eight volumes of the NEWS form the most valued portion of my entomological library. They are valuable for reference, entertaining to read, and pretty to look at.—A. W. PEARSON.

ODONATA. A SYNONYM AND THE BEARING OF ITS DISCOVERY ON THE CLASSIFICATION OF AGRION.—An examination of some material from Mexico, recently collected by Mr. Otis W. Barrett, has shown me that the species which I described as *Ischnura exstriata* (Proc. Calif. Acad. Sci. —2—iv, p. 493, 1895) is specifically identical with *Agrion denticolle* Burmeister, the type of which latter exists at Halle, Germany, where I have studied it. *Denticolle* is referred by Baron de Selys to the genus *Nehalennia*, a genus belonging to that section of the "grand genre Agrion" in which the females have no apical ventral spine on the eighth abdominal segment. *Ischnura* belongs to the section in which such a spine is present. There is no doubt that the female type of *I. exstriata* possesses this spine, nor is there any reason for disbelieving that the females of *denticolle* seen by de Selys lacked it. Burmeister's type, which de Selys did not see, has a suggestion of such a spine, while among Mr. Barrett's specimens are some females with, others without, this spine. I have no

hesitation in stating that *exstriata* Calvert is specifically identical with *denticolle* Burm., but it is evident that this discovery breaks down the only general distinction separating the two groups of genera represented by *Ischnura* and *Nehalennia* respectively. I find, moreover, that in *I. verticalis* Say, *I. perparva* Selys and *I. cervula* Selys female individuals of one and the same species exist which have this spine absent, extremely small or quite distinct.—PHILIP P. CALVERT.

ODONATA. THE FIRST FILLING OF THE TRACHEÆ WITH AIR.—Within half an hour after hatching from the egg, the young larva of *Sympetrum* (*Diplax*) *vicinum* Hagen—and the same is true for *Libellula quadrimaculata* L. and *Orthetrum cancellatum* L., as I observed at Jena, in June, 1896,—makes its first moult. Previously its tracheæ, though visible, contain no air. In watching some larvæ of *vicinum* execute this first moult recently (January, 1898), I observed that air first appears in the tracheal system, in the thoracic portion of the right, main, dorsal trachea and flows thence both forwards into the cephalic, and backwards into the abdominal tracheæ, consequently filling the tracheoles of the rectal tracheal gills at a measurably later period. I believe that this observation is new, at least for the Odonata. I regret that I could not determine precisely where the air enters, nor how, nor whether the air which early appears in the left, main, dorsal trachea enters independently, or from branches connecting it with the right dorsal trunk. I hope that detailed statements may appear later.—PHILIP P. CALVERT.

NEWS OF THE DEPARTMENT OF INSECTS, U. S. NATIONAL MUSEUM.—The collection of insects of the U. S. National Museum is rapidly increasing. A great donation, the details of which have just been completed, is the large Hubbard and Schwarz collection of Coleoptera. This is one of the first collections of Coleoptera in the United States. It comprises from 10,000 to 12,000 species brought together by Messrs. Hubbard and Schwarz during the last twenty-five years. It has especial value from its fine condition and accurate labelling, affording possibly the best source of information regarding geographical distribution. This collection adds about 3000 species to the collection of Coleoptera of the Museum. It contains a moderate number of types, but a large number of co-types of the species described by LeConte and Horn. It also contains some exotics, notably a good collection of West Indian micro-Coleoptera, and is practically unique in its large series of coleopterous larvæ and pupæ in alcohol.

The death of Mr. M. L. Linell, in the spring of 1897, was a severe blow to the Department, but a re-arrangement has been effected by which an excellent working force has been secured. The Department has been extremely fortunate in attaching to it Dr. Harrison G. Dyar. Since the departure of Dr. John B. Smith there has practically been no lepidopterist in Washington, and Dr. Dyar's advent is especially welcome. He has entirely re-arranged the collection of Lepidoptera and has deposited in

the Museum his own large collection of some 15,000 specimens. The force as at present constituted is L. O. Howard, Honorary Curator; Wm. H. Ashmead, Assistant Curator and Custodian of Hymenoptera; Harrison G. Dyar, Custodian of Lepidoptera; E. A. Schwarz, Custodian of Coleoptera; D. W. Coquillett, Custodian of Diptera; and R. P. Currie, Aid.

For a Department which has bought no large collections, the Department of Insects is rich in type material. The catalogue shows the existence of over 4000 types in the different orders.

Recent accessions of special value are a collection of European bees, representing all of the genera known except one; the Hubbard material in all orders recently collected in Arizona; the African material collected in Liberia by Cook and Currie; the African and Siamese material collected by Dr. W. L. Abbott; a collection of Coccinellidæ and Psyllidæ made by Albert Koebele in Japan, Australia, China and Mexico; a collection of parasitic Hymenoptera made by the same collector in the countries above indicated; a very large collection of Japanese insects in all orders presented by the Imperial University of Tokio through Professor Mitsukuri; the T. A. Williams collection of Aphididæ, comprising over 800 slides of forms collected in the Northwest. Smaller donations are constantly being received from collectors and specialists and the number of those received in the course of the year form very important additions to the collection.

The facilities for the preservation of specimens have been very considerably increased, several hundred of the permanent glass-covered drawers having been added.

Entomological Literature.

Under the above head it is intended to note such papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology, unless monographs, or containing descriptions of new genera, will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in heavy-faced type refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms.

4. The Canadian Entomologist, London, Ont., Feb., '98.—**5.** Psyche, Cambridge, Mass., Feb., '98.—**7.** U. S. Department of Agriculture, Division of Entomology, Washington; publications of, '97.—**9.** The Entomologist, London, Feb., '98.—**11.** The Annals and Magazine of Natural History, London, Jan., '98.—**15.** Biologia Centrali-Americana, London, part cxxxvii, Sept., part cxxxix, Dec., '97.—**19.** Horæ Societatis Entomologicæ Rossicæ, xxxi, 1-2, St. Petersburg, '97.—**22.** Zoologischer Anzeiger, Leipsic, '98.—**38.** Wiener Entomologische Zeitung, xvi, 10.

Dec. 25, '97; xvii, 1, Jan. 25, '98.—**40.** Societas Entomologica, Zurich-Hottingen, '98.—**41.** Entomologische Nachrichten, Berlin.—**45.** Deutsche Entomologische Zeitschrift, '97, ii, Dresden, Jan. 12, '98.—**47.** The Zoologist, London, Jan. 15, '98.—**59.** Sitzungsberichte, Gesellschaft der naturforschenden Freunde, Berlin, '97.—**60.** Anales del Museo Nacional de Buenos Aires, v, '96-'97.—**61.** Natural Science, London, Jan., '98.—**62.** Konglige Svenska Vetenskaps-Akademiens, Stockholm.—**63.** 'Fauna.' Verein Luxemburger Naturfreunde, vii, '97.—**64.** Annalen der k. k. Naturhistorischen Hofmuseums, xii, 1, Wien, '97.

The General Subject.—Insect World: A Monthly Magazine. Edited by Y. Nawa. Gifu, Japan. Appears on the 15th of each month, vol. i, No. 1, on Sept. 15, '97; No. 4, Dec. 15, '97. Wholly in Japanese.—Claypole, A. M. Some points on cleavage among Arthropods, 1 pl., Transactions American Microscopical Society, xix, Buffalo, Dec., '97.—Comstock, J. H. and Needham, J. G. The wings of insects, i, figs., American Naturalist, Boston, Jan., '98.—Daguillon, A. On a leaf Dipterocecidium of *Hypericum perforatum*, figs., Revue Generale de Botanique, x, 109. Paris, Jan. 15, '98.—Day, G. O. A new setting-board, figs., **9.**—Eimer, G. H. T. and Fickert, C. Orthogenesis der Schmetterlinge. Ein Beweis bestimmt gerichteter Entwickelung und Ohnmacht der natürlichen Zuchtwahl bei der Artbildung. Die Entstehung der Arten. II Theil. Zugleich eine Erwiderung an August Weismann. Leipzig, Verlag von Wilhelm Engelmann, 1897. Pp. xvi. 513; 235 figs., 2 pls. This volume is the second part of the author's "Entstehung der Arten auf Grund von Vererben erworbener Eigenschaften nach den Gesetzen organischen Wachsens." We cannot—at present at least—attempt to review this volume, but it is almost obligatory to indicate its contents: General Introduction, on definitely directed development (Orthogenesis) and on impotence of Darwinian selection in the formation of species; So-called germinal selection—criticism and reply; Origin of the similarity to leaves among butterflies; The most important directions of the development of butterflies, types of marking and pseudo-mimicry; Directions of the development in single families of butterflies and further [considerations] on mimicry; Directions of the development of the Heterocera and Microlepidoptera; Generalities on Mimicry in butterflies; Regular and varied stages of marking and color in the different wing-surfaces of day butterflies; Preponderance of one sex (male and female preponderance), Sexual Dimorphism, Sexual Selection, Origin of ornamentation; External, especially climatic influences as causes of the formation of species of butterflies; Experiments on the artificial action of heat and cold on development; Summary of the important results, Conclusion and Special Remarks, List of figures, author and subject indexes.—Emery, C. Instinct, intelligence and speech, Biologisches Centralblatt, Leipsic, Jan. 1, '98.—Finn, F. Contributions to the theory of warning colors and mimicry, No. iii. Experiments with a Tupaia and a Frog. Journal, Asiatic Society of Bengal, lxvi, ii, 2. Calcutta, Aug. 13, '97.—

Gahan, C. J. *Dipeltis*, a fossil insect? figs., **61.**—Heymons, R. Composition of the insectan head, **59,** No. 7.—Marlatt, C. L. A brief historical survey of the science of entomology with an estimate of what has been, and what remains to be accomplished. Annual address of the President for the year 1897. Proceedings, Entomological Society of Washington, iv, 2, '98.—Morse, A. P. Pacific coast collecting. ii, **5.**—Schlechtendal, D. H. R. The galls (Zoocecidiæ) of German vascular plants, ii, Jahresbericht, Verein für Naturkunde, Zwickau '95, '96. —Smith, J. B. George H. Horn. Science, N. Y., Jan. 21, '98.—Trimen, R. Mimicry in insects, Nature, London, Jan. 27, '98.—Verhoeff, C. Still some words on segmental appendages of insects and myriopods, **22,** Jan. 10.—Wiskott, M. Lepidopterous hermaphrodites and abnormalities of my collection [two papers], 3 pls., **45.**

Economic Entomology.—Abstracts of some recent papers, **7,** Experiment Station Record, ix, 3-5.—[Bergholz, L.] Destruction of Locusts [in Natal], Consular Reports, lvi, 209, Washington, Feb., '98.—Card, F. W. Observations on the codling-moth, figs., Bulletin 51, U. S. Agricultural Experiment Station of Nebraska, Lincoln, Dec. 20, '97.—Decaux. *Carpocapsa pomonana*, **63.**—Howard, L. O. The gipsy moth in America: a summary account of the introduction and spread of *Porthetria dispar* in Massachusetts and of the efforts made by the State to repress and exterminate it, **7,** Bulletin No. 11, new series.—Jablonowski, J. Directions for destroying the halmfly (*Chlorops tæniopus*), Rovartani Lapok, v, 1, Budapest, Jan., '98.—Lindau, G. On a caterpillar disease observed in the Berlin Botanical Garden, Verhandlungen, Botanischen Vereins der Provinz Brandenburg, '97, Berlin.—Smith, J. B. The San José scale and how it may be controlled, Bulletin 125, New Jersey Agric. Exper. Station, New Brunswick, N. J., Nov. 27, '97.

Arachnida.—Cambridge, F. O. P.—Arachnida Araneidea, vol. ii, pp. 9-40, pls. i—ii, **15,** pt. 137.—Cambridge, O. P. Arachnida-Araneidea, vol. i, 2 pls., pts. 137, 139, **15.**—Lönnberg, E. A revision of the Linnean type specimens of scorpions and pedipalps in the zoological museum of the University at Upsala, **11.**—Marshall, G. A. K. Spider *versus* wasp, **47.**—Piersig, R. Hydrachnid forms from the heights of Tatra, **22,** Jan. 10.—Pocock, R. I. Stridulation in some African spiders, figs., **47.**—Simon, E. Arachnida collected in Terra del Fuego by M. Carlos Backhausen (2nd memoir), **60** —Trouessart, E. Mode of topographic distribution of the Entomostraca and marine Acarina on the coasts of France and description of *Acaromantis squilla* Trt. Memoires, Société Nationale des Sciences naturelles et mathematiques de Cherburg xxx, '96-'97.

Myriapoda.—Silvestri, F. Chilopods and Diplopods from the voyage of Dr. E. Festa to Ecuador and neighboring regions, 1 pl., Bollettino dei Musei di Zoologia ed Anatomia comparata, R. Universita di Torino, No. 305, Oct. 18, '97.

Apterygota.—Heymons, R. Formation and structure of the

alimentary canal of lower insects, **59,** No. 7.—Lie-Pettersen, O. J. Norwegian Collembola, 2 pls. Bergens Museums Aarborg for 1896, 1897.

Orthoptera.—Bordas, L. The digestive apparatus of the Orthoptera—morphological, histological and physiological studies of this organ, and its importance for the classification of the Orthoptera. Annales des Sciences Naturelles-Zoologie (8), v, 1-3. Paris, Oct., '97-Jan, '98.—Dominique, J. Orthopterological notes: On the development of the wings in the genus *Nemobius*, Parthenogenesis and parasitism in *Bacillus gallicus*. Bulletin, Société des Sciences Naturelles de l'Ouest de la France, vii, 3. Nantes, Sept. 30, '97.—Giardina, A. First embryonic stages of *Mantis religiosa*, Monitore Zoologico Italiano viii, 12. Florence, Dec., '97.—Hancock, J. L. The food-habits of the Tettigidæ, Entomologist's Record, London, Jan. 15, '98.—Kulwiec, C. v. The skin glands of Orthoptera and Hemiptera-Heteroptera, figs., **22,** Jan. 24.—Rodzianko, W. See Diptera.—de Saussure, H. and Pictet, A. Orthoptera,* pp. 305-320 pt. 137; 329-345, pl. xvi, pt. 139, **15.**—Scudder, S. H. The Acridian subfamily Mastacinæ in the United States, **5.**

Neuroptera.—L. H. East Prussian ant-lions, **40,** Feb. 1.

Hemiptera.—Baker, C. F. Four new species of *Phlepsius*,* **4.**—Berg, C. Contribution to the study of the Hemiptera of Tierra del Fuego, **60.**—Bergroth, E. A new Tingid; New or little known American Aradidæ;* On some American Capsidæ, **38,** xvii, 1.—Champion, G. C. Rhynchota Heteroptera vol. ii, pp. 1-32, pls. i, ii,* **15,** pt. 139.—Cholodkovsky, N. On root-lice, figs. [In Russian], **19.**—Fowler, W. W. Rhynchota Homoptera, vol. ii, pl. xii, **15,** pt. 137.—Mordwilko, A. On the biology and morphology of the plant-lice [In Russian], **19.**—Osborn, H. and Ball, E D. Studies of North American Jassoidea,* 6 pls. Proceedings Davenport Academy of Natural Sciences, vii. Davenport, Iowa, Jan., '98.—Tinsley, J. D. An ants' nest Coccid from New Mexico,* fig., **4.**

Coleoptera.—Blackburn, T. Revision of the genus *Paropsis*, ii. Proceedings, Linnean Society of New South Wales, '97, pt. i, Sydney, Sept. 17, '97.—Blandford, W. F. H. Coleoptera, vol. iv, pt. 6, pp. 153-168, pl. vi, pt. 137, pp. 177-184,* pt. 139, **15.**—Faust, J. Revision of the genus *Episomus* Schönherr, **19.**—Grouvelle, A. Note on the *Pelonomus pubescens* Blanch. and *simplex* Berg. and description of some new Dryopidæ and Helmidæ, **60.**—Hopkins, A. D. On the history and habits of the "wood engraver" ambrosia beetle, *Xyleborus xylographus* (Say), *X. saxeseni* (Ratz.)—with brief descriptions of different stages, 2 pls., **4.**—Luja, E. *Cetonia aurata* in ants' nests, **63.**—Reitter, E. The species of the coleopterous genus *Notiophilus* Dumeril of European and neighboring lands, **41,** Dec., '97; Review of the known species of the coleopterous genus *Scleropatrum* Seidl. of the palæarctic fauna, **38,** xvii, 1.—Wickham, H. F. The Coleoptera of Canada: xxviii. The Cerambycidæ of Ontario and Quebec, figs., **4.**

Diptera.—Dahl, F. *Puliciphora*, a new flea-like genus of Diptera (transl. from Zool. Anz.), **11.**—Mik, J. On gall-flies, 1 pl., **38,** xvi, 10.—Rodzianko, W. On the parasitism of the larvæ of *Rœselia antiqua* Meigen in the interior of the larvæ of *Forficula tomis* Kolenati. [In Russian] **19.**—van der Wulp, F. M. Diptera, vol. ii, pp. 345–360, pt. 137; pp. 369–376,* pt. 139. **15.**

Lepidoptera.—Berg, C. Description of three new Lepidoptera in the collection of the Museo Nacional de Buenos Aires, 3 figs.; On the geographical distribution of *Ophioderes materna* L.; Lepidopterological communications on twenty-five South American Rhopalocera, **60.**—Butler, A. G. A revision of the Pierine butterflies of the genus *Terias* from the old world, **11.**—Davidson, et al. [Extract]. Butterfly life in the tropics of India, **5.**—Druce, H. Lepidoptera Heterocera, vol. ii, pp. 409–416, pls. lxxix, lxxx, pt. 137, pp. 425–440, pls. lxxxiii, lxxxiv,* pt. 139, **15.**—Dyar, H. G. The larvæ of the Australian Eucleidæ (Annual address of the retiring president of the Cambridge Entomological Club, 14 Jan'y, '98), **5.**—Godman, F. D. and Salvin, O. Lepidoptera Rhopalocera,* vol. ii, pp. 441–448, **15,** pt. 137.—Grote, A. R. The classification of the day butterflies—i, 1 pl., **61.**—Hanham, A. W. Notes on collecting "at light," **4.**—Hofmann, O. Three new Tinean genera, figs., **45.**—Holmgren, E. Studies on the morphology of the testes and of cortical male genital organs of the Skandinavian Macrolepidoptera, 9 pls. [In Swedish] **62,** Handlingar, xxvii, 4, '95.—Pauls. To produce summer broods [of Lepidoptera], **40,** Jan. 15.—de Rocquigny-Adanson, G. Retarded butterflies. Revue Scientifique, Paris, Jan. 15, '98.—Schultze, L. S. Experimental researches on native Macrolepidoptera, Naturwissenschaftliche Wochenschrift. Berlin, Jan. 30, '98.—Sommer, C. *Sciaphila osseana* Sc. var. *niveosana* Packard, **45.**—Staudinger, O. Some new species and varieties of butterflies, **45.**—Walsingham, Lord and Durrant, J. H. Revision of the nomenclature of Microlepidoptera, Entomologists' Monthly Magazine, London, Feb., '98.—Wiskott, M. See General Subject.

Hymenoptera.—Adlerz, G. Myrmecological studies, iii: *Tomognathus sublævis* Mayr. 1 pl. [In Swedish] **62,** Bihang, xxi, iv, 4, '96.—Cholodkovsky, N. Contributions to a monograph of the conifer-lice [*Chermes*], chaps. v–vii, 6 pls., **19.**—Cockerell, T. D. A. *Panurginus clypeatus*, **4;** Synopsis of the North American bees of the genus *Nomia*,* **9.**—Kohl, F. F. *Eremiasphecium*, a new genus of Hymenoptera, family Sphegidæ, **64.**—Konow, F. W. Two new Siricidæ and some palæarctic Tenthredinidæ, **41,** Dec., '97; Systematic and critical revision of the Sawfly tribe Lydini, **64;** Further contribution to the synonymy of the Tentnredinidæ, **38,** xvi, 10, xvii, 1.—Kriechbaumer, Dr. The genus *Joppa*,* **41,** Jan., '98.—Luja, E. See Coleoptera.—Marshall, G. A. K. See Arachnida.—Stadelmann, R. Anatomical study of a hermaphrodite of *Dendrolimus fasicatellus* (Mén.), **59,** No. 8.

Doings of Societies.

A special meeting of the American Entomological Society was held Jan. 27, 1898, Dr. Calvert, vice-president, presiding. Mr. Stanley T. Kemp presented a specimen of *Euphanessa mediana* Slosson, new to the collection, from Anglesea, N. J. Dr. Calvert read a biography of the late Dr. Horn, which will shortly be published in the Transactions (American Entomological Society). Same speaker exhibited some larvæ of dragonflies hatched in the house and he thought the circulation of the blood, which could be well seen, might prove of interest to the members. The single blood vessel or aorta was described as well as the character of the blood and the corpuscles. Although the legs of the larvæ are long, the corpuscles do not go beyond the bases of the legs. The difficulty of observing the dorsal blood-vessel in imagos was mentioned. Mr. Johnson stated that in going over the literature of the Syrphidæ he had found a number of list names which were not now recognized in the literature. Among them was *Bacca keenii* Will. which is the *tarchetius* of Walker. This name *keenii* was given in the local list published by Keen, a Philadelphian, in the Canadian Entomologist in August, 1884. Dr. Skinner called attention to an illustrated journal of entomology published in Japan in the language of the country. Mr. Liebeck called attention to a curious mailing box for insects. It was pasteboard, and was supported from the inside by a double wooden gallows-like arrangement.

HENRY SKINNER, M.D., *Secretary.*

At the last meeting of the Feldman Collecting Social held on February 8, at the residence of Mr. H. W. Wenzel, 1523 S. 13th St., Phila., the address of the retiring President, Dr. H. G. Griffith, was read by the Secretary. It dwelt on the value of fraternity and good-fellowship among entomologists, and on the loss to science in general by the petty jealousies and unfriendliness of co-laborers in that field. Prof. Smith exhibited sketches illustrative of structural details of the peach-borer, *Sannina exitiosa*. The antennæ differ in the sexes, and possess at the base an ear-like sensory organ, the first and second joints being modified for its accommodation. Variation in the scaling of individuals was shown, and the presence of jointed mandibles

was dwelt on as an unusual character. In the female the maxillary palpi are 2-jointed, in the male 3-jointed; the presence of these palpi was apparently not before noted in the Sesiidæ. The difficulty of inducing the sexes of this species to mate was mentioned, and although eggs were laid within twenty-four hours after the insect emerged from the pupa, none were fertilized. The females possess eight ovarian tubes, each containing about sixty eggs. Mr. Wenzel remarked on the apparent seldomness of copulation in the peach-borer. Dr. Skinner spoke on the extensile structure of the club of antenna of butterflies, especially in regard to a species of *Argynnis*, in which a telescoping of that part was noticed. He presented to the Social on behalf of Mr. Geo. B. King, of Lawrence, Mass., a series of microscopical slides containing coccids from ant's nests. He also referred to the care of specimens from pests, etc. Napthaline is fatal to pests if the boxes be perfectly tight; otherwise it is likely to be ineffective.

Mr. Aaron mentioned the efficacy of bisulphide of carbon in destroying pests. The fumes will kill all stages but the egg. He further spoke on the habits of *Neoclytus erythrocephalus* and *Elaphidion*. Discussed by Messrs. Smith, Johnson and Laurent.

Mr. H. Wenzel reported the capture of thirty specimens of *Casnonia ludoviciana* at Camden, N. J., on January 29; also two larvæ of probably *Pyractomena lucifer*.

Mr. S. Frank Aaron was nominated for membership.

WM. J. FOX, *Secretary*.

The following officers were elected at the meeting of the Newark Entomological Society held January 9th:

President, A. P. Schleckser.
Vice-President, H. H. Brehme.
Treasurer, Simon Seib.
Secretary, A. J. Weidt.
Librarian, John Engelman.
Curator, A. P. Schleckser.

A. J. WEIDT, *Secretary* pro. tem.

OBITUARY.

ERNST LUDWIG TASCHENBERG, Professor of Entomology in the University at Halle, Germany, died Jan. 19, 1898. He was born in 1818, and published on Economic Entomology and on the Hymenoptera.

ENTOMOLOGICAL NEWS for February was mailed January 31, 1898.

EXCHANGES

Not exceeding three lines free to subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at end of the column, and only when necessary those at the top (being longest in) are discontinued.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. **Please put date of capture and exact locality on each specimen.** Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Lepidoptera.—For exchange *Argynnis chariclea* var. *artica* Zett. and *Glaucopteryx polata* Hüb. These are from the Peary expedition to North Greenland.—Henry Skinner, M.D., Acad. Nat. Sci., 19th and Race Sts., Phila., Pa.

Lepidoptera.—I have *Thecla sheridanii* Edw., *Anthocharis rosa* Edw. and many other rare mountain forms for exchange for other rare N. A. species not in my collection; also a large list of Mexican Lepidoptera.—J. T. Mason, 1572 Race St., Denver, Col.

Wanted for exchange: pupæ and cocoons—Lepidoptera and Coleoptera, Bernhard Gerhard, 6054 Horton Pl., St. Louis, Mo.

Lunas: *cecropias*, *prometheas*, *imperialis*, *regalis*, *Smerinthus myops* and *Anisota rubicunda* for exchange.—George Krautwurm, Arlington Place, Lincoln Ave., E. E. Pittsburg, Pa.

Lepidoptera.—Live pupæ, cocoons and fertile eggs desired in exchange for European and exotic Lepidoptera and Coleoptera.—A. Voelschow, Schwerin, Meckl., Germany.

Vancouver Island.—I have many hundred Hymenoptera, Hemiptera (Jassidæ) and Diptera mounted, but unnamed; also a few butterflies. Will exchange any of above for Cerambycidæ from North, South and Central America.—Clermont Livingston, Corfield, Vanc. Is., Br. Col.

For Exchange.—Eggs of *H. maia*, pupæ of *E. imperialis* and R. I. Lepidoptera for species not in my collection or cocoons of any of the large western or foreign silkworms.—Wm. Dearden, Box 276, Lonsdale, R. I.

Wanted.—*Cychrus nitidicollis*, *C. regularis*, *C. snowi*, *C. guyoti*, *C. ridingsii*, *C. rickseckeri*, *C. hemphillii*, *C. angulatus*, *C. fuchsii*, *C. merkeli*. For any of the above I will give fine specimens of *C. viduus*, *andrewsii*, *lecontei* and other good species.—Emil C. Ehrmann, 2314 Sarah St., Pittsburgh, Pa.

Coleopterous Larvæ.—Chrysomelid larva and pupæ are desired in exchange or for cash; must be carefully determined; also other Coleopterous larvæ and pupæ.—E. D. Sanderson, 29 Cascadilla Pl., Ithaca, N. Y.

Wanted.—Living ovæ and pupæ; also specimens of any species of Catocala, especially ovæ. Good exchange or cash offered.—E. M. Dadd, 3 Colina Villas Green Lanes, Wood Green, London, N. Eng.

For Exchange.—Edwards' "Butterflies of North America" second series Nos. 1, 2, 3 (two copies), 4, 5 and 6.—G. C. Davis, 226 West First St., Los Angeles, Cal.

Lepidoptera.—I have a large list of duplicates for exchange. Noctuids desired. Send list.—A. J. Weidt, 178 Dickerson St., Newark, N. J.

Lepidoptera.—I have for exchange pupæ of the rare *Sphinx luscitiosa*. Will exchange for rare exotic *Papilios*.—H. H. Brehme, 213 Milford Ave., Newark, N. J.

Lepidoptera.—Wanted, inflated larvæ from all parts of the world. Imagines of native and exotic species offered in exchange.—William L. W. Field, Milton, Mass.

Lepidoptera and **Coleoptera.**—New England butterflies and a few species of beetles to exchange for injurious species of any order not in my collection.—W. E. Britton, Agr. Exp. Station, New Haven, Conn.

Wanted.—North American butterflies and moths. Will purchase or give Indian specimens in exchange. Common species taken. Send list to Wm. D. Denton, Wellesley, Mass.

All Orders.—I have named insects of all orders to exchange for specimens, named or unnamed, of all orders except Lepidoptera.—Charles Brues, 320 Hampden Ct., Chicago.

Wanted to purchase or exchange for specimens of *Pierus rapæ* from all parts of the United States and Canada. Full information of date and locality must be given. Abnormal specimens especially wanted. Address William L. Tower, High School, Akron, Ohio.

Wanted Microlepidoptera, especially *Tineina* from all parts of U. S.; will buy or exchange for Coleoptera and Lepidoptera. Will also collect in other orders if desired. Address Dr. W. G. Dietz, 21 N. Vine St., Hazleton, Pa.

Wanted.—American Dragonflies (Odonata) and Myrmeleonidæ. Sialidæ from any locality. Literature on the above groups.—Chas. C. Adams, Urbana, Ill.

Coleoptera.—Wanted to purchase species of *Nomaretus*, *Cychrus*, *Carabus* and *Calosoma*.—A. Luetgens, 14 W. 17th St. New York City.

Lepidoptera.—*Morpho polyphemus*, *Caligo uranus*, *Antheræa chapata* and other rare Mexican species for exchange. Correspondence solicited. —O. W. Barrett, Clarendon, Vt.

Lepidoptera.—Will exchange anything in my collection, or collect in any branch, for works on any families of Lepidoptera not already in my library.—O. C. Poling, Quincy, Ill.

In the coming season will exchange for exotic Lepidoptera, also native cocoons and pupæ of Lunas: *Cecropia*, *Polyphemus*, *Regalis*, *Imperialis*, *Sm. myops*, *excæcatus*, *A. rubicunda* and many others. Send for list.—George Krautwurm, Arlington Place, Lincoln Ave., E. E. Pittsburg, Pa.

Homoptera.—Wanted Jassidæ and Cercopidæ. Will exchange or purchase.—E. W. Ball, Ft. Collins, Colo.

Lepidoptera of India and Europe for exchange; ova yamamai for sale. *Carabus olympiæ* for sale and exchange. Wanted live cocoons.—Emil Heyer, Moritzstrasse 8, Elberfeld, Germany.

Will name and return species of *Nonagria* and *Hydrœcia* for the privilege of retaining desirable species a brief period for purposes of study. —John B. Smith, New Brunswick, N. J.

Lepidoptera.—Cocoons of *P. cecropia*, *T. polyphemus* and *C. promethea* to exchange for Lepidoptera not in my collection.—C. D. Heim, 156 Fourth St., Sunbury, Pa.

A collection of Coleoptera carefully packed in boxes, taken the past summer at Opelousas, La.—G. R. Pilate, 127 S. Commercial St., Dayton, Ohio.

Fine Ornithoptera: *Miranda* ♂♀, *Andromache* ♂♀, *Brookiana* ♂♀, *Druryia antimachus*, etc., and Bornean Bflies in exchange (for other exotics). Butterflies only or buy other rare species.—W. Dannatt, F. E. S., Ivy Dene, Westcombe Park, London S. E. England.

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